

3.10 Surface Hydrology and Water Quality

This section addresses the potential environmental impacts the Project may have on surface hydrology and water quality in the vicinity of the Project. Included in this section is an evaluation of storm water runoff and the existing drainage system, as well as the potential Project impacts related to the generation and disposal of runoff. Information for this section was obtained primarily from existing public documents and studies.

Environmental Setting

Surface Water Features

The Project is located in an area that has been previously developed. The main surface water features on the Project site are two canals, which are shown in **Figure 2.3** in Section 2.0, Project Information. The Fiddler Green Canal, managed by the Placer County Water Agency (PCWA), originates from Halsey Afterbay, approximately three miles northeast of the Project site. It enters the Project site from the north and traverses the site before leaving it at its southeastern corner. The Wise Canal, managed by the Pacific Gas and Electric Company (PG&E), is located along the western boundary of the Project site. It originates at Rock Creek Reservoir, approximately 1.5 miles north of the Project site. No natural streams or bodies of water are located within the Project site.

Groundwater

The Project site is located within the planning area of the *Auburn-Bowman Community Plan*. According to the Community Plan's Conservation and Open Space Component of the Environmental Resource Management Element, the occurrence of groundwater in the planning area is greatly variable, due to the complex geology. There are no aquifers due to shallow soils and dense bedrock. Groundwater is found in surface fractures and cracks in the bedrock.

According to a 1991 groundwater monitoring report for the Project site, available as Appendix O in the Bohemia Wal-Mart EIR, water was found at depths from 4.15 feet to 11.30 feet below ground surface. However, no wells for water supply operate on the Project site, and no groundwater usage is planned for the Project.

Drainage and Flooding

The Project site is located within the drainage shed of North Ravine, an intermittent stream located to the west. More specifically, the Project site is located within the portion of the North Ravine watershed situated east of State Highway 49 (S.R. 49). This watershed portion is approximately bounded by S.R. 49 to the west, the Union Pacific railroad track to the north, and natural terrain to

the south and east. **Figure 3.10-1** delineates this portion of the watershed area, which is approximately 309 acres in size.

Luther Road generally divides this watershed into two distinct parts. The Project site is located in the portion of the watershed north of Luther Road, within the cross-lined area in **Figure 3.10-1**. The Bohemia and Blue Oaks Apartments Drainage Study, conducted by Psomas in 2000 for a previously proposed project on the Project site, divided this northern portion into eight subareas. The Project site was located in subarea H. According to the drainage study, drainage in subarea H naturally flows in a westerly direction toward S.R. 49. However, the two canals actually intercept the drainage. The Fiddler Green Canal intercepts drainage from the northeastern portion of the Project site, while the Wise Canal intercepts the remaining site drainage. According to information in the Bohemia Wal-Mart EIR, PG&E does not allow surface runoff to enter the Wise Canal in order to protect water quality. At present, however, there are no barriers to prevent this from occurring. Likewise, runoff can enter the Fiddler Green Canal with few impediments.

The Federal Emergency Management Agency (FEMA) prepares Flood Insurance Rate Map (FIRMs) for areas potentially subject to flooding. The FIRM indicates the 100-year floodplain, the area subject to flooding during a storm event expected to occur on average once every 100 years. The 100-year floodplain is generally used in the development of policies and programs that address flooding. According to FIRM #06061C0288F and a hydrology study prepared for the Auburn-Bowman Community Plan, the Project site is not located within a 100-year floodplain as identified by FEMA.

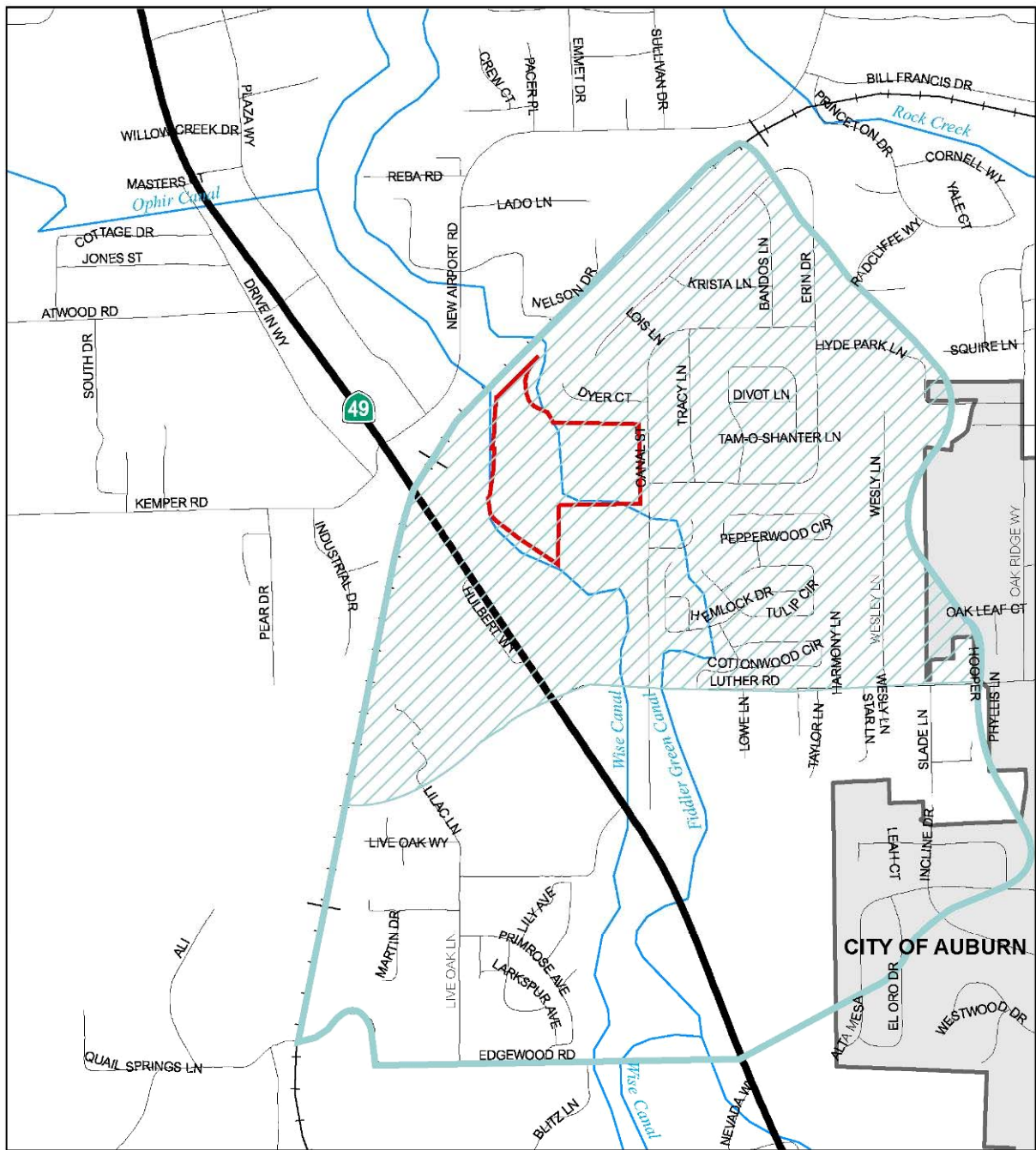
Storm Water Drainage System

There are currently no storm water drainage facilities on the Project site. Some old pipes, likely related to previous planing mill activities, remain on the Project site. However, they are not used for drainage collection and conveyance. Areas east of the Project site contain storm drain lines and detention ponds that serve the residential development located there. Drainage from this area is eventually conveyed to an existing box culvert at S.R. 49 near its intersection with Luther Road. There are two other culverts located at S.R. 49 west of the Project site. These culverts receive drainage mostly from lands west of Wise Canal.

There is a Memorandum of Understanding (MOU) between the property owner of the site and Placer County to extend a public drainage system to the Fiddler Green subdivision located to the east, across Canal Street. This system would convey the flow from a 25-year storm event from the recreational area of the subdivision across Canal Street, through the Project site, and down to the existing culvert under Highway 49.

Water Quality

Water quality information related to the Project site is limited primarily to groundwater. Past activities on the Project site have affected groundwater quality. The previously cited 1991 groundwater monitoring report stated that samples from three monitoring wells had a detectable odor of diesel in the purge water. However, a subsequent report in 1992 indicated no diesel odors were detected from water in the remaining monitoring wells, and the Regional Water Quality Control Board determined that no further monitoring was required.¹



SOURCE: PSOMAS, Adapted by P&D Consultants, 2005.

- Project Site
- Drainage Shed
- Area Impacting or Impacted by Project



Figure 3.10-1
Drainage Shed Map

This Project is subject to storm water permit requirements of the Federal Clean Water Act National Pollutant discharge Elimination System (NPDES) Phase II program.

No other water quality issues were identified with the Project site.

Regulatory Setting

There are a variety of regulatory agencies responsible for overseeing water quality, flooding, and hydrology issues within the State of California. Approval of projects requires consultation with several agencies, as well as consistency with the rules and regulations of each agency. Pertinent agencies with regulatory control over water quality issues within Placer County are identified below.

Clean Water Act

The Clean Water Act (CWA) is the primary federal statute governing the protection of water quality of surface water bodies. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based on bio-monitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. As a result of the re-authorization of the Clean Water Act in 1987, Sections 402(p) through 405 were added. One of the results of the new additions was the creation of the NPDES program, which is discussed later in this section. Also, as discussed in the Biological Resources section, the Section 404 program regulating discharges into waters of the United States was established.

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans, and objectives that will provide protection to the state's waters for the use and enjoyment of the people of California. The Act sets forth the obligations of the Boards pertaining to the adoption of water quality control plans (Basin Plans) and establishment of water quality objectives, and authorizes designated agencies to issue and enforce permits containing waste discharge requirements. Basin Plans are the regional water quality control plans required by both the Clean Water Act and the Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California.

State Water Resources Control Board/Regional Water Quality Control Board

In California, the State Water Resources Control Board (SWRCB) has broad authority over water quality control issues for the State. The SWRCB is responsible for statewide water quality policy development and exercises the powers delegated to the State by the federal government under the Clean Water Act.

Regional authority for planning, permitting, and enforcement is delegated by the SWRCB to a Regional Water Quality Control Board (RWQCB). There are nine RWQCBs in the State. The Project site is located within the jurisdictional boundaries of the Central Valley RWQCB, whose region covers a broad area from Modoc County in the north to the Tehachapi Mountains in the south, and includes the entire Central Valley.

The RWQCB is required to formulate and adopt water quality control plans for all areas within its specific region. Water quality objectives must be established in the water quality control plans. Water quality objectives for waterways in this region are specified in the Water Quality Control Plan prepared by the Central Valley RWQCB. The RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to water at locations within its jurisdiction. As mentioned in Section 3.3, Biological Resources, the RWQCB also has the authority to issue water quality certifications in accordance with Section 401 of the federal CWA.

Both the SWRCB and the RWQCB are responsible for ensuring implementation of and compliance with the provisions of the CWA and the Porter-Cologne Water Quality Control Act. Along with these two agencies, water quality protection is the responsibility of numerous water supply and wastewater management agencies, as well as city and county governments.

National Pollutant Discharge Elimination System (NPDES)

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the CWA to regulate municipal and industrial discharges to surface waters of the U.S. Nonpoint pollution sources originate over a wide area rather than from a definable point. Such nonpoint sources are generally exempt from federal NPDES permit program requirements with the exception of discharges caused by general construction activities and the general quality of storm water in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of storm water discharged to receiving waters to the “maximum extent practicable” through the use of Best Management Practices (BMPs).

In accordance with recently revised NPDES regulations, and to minimize the potential effects of construction runoff on surface water quality, the State requires that any construction activity affecting one acre of land or more must obtain a General Construction Activity Storm Water Permit. Permit applicants are required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and to implement source control BMPs in order to reduce construction effects on water quality of receiving water bodies. Because construction of the proposed Project would disturb more than one acre, the Project would be subject to permit requirements. Examples of construction BMPs identified in SWPPPs include the following:

- Using temporary mulching, seeding or other stabilization measures to protect uncovered soils.
- Storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water.
- Developing and implementing a spill prevention and cleanup plan.
- Installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains.
- Using barriers, such as straw wattles or silt fencing, to minimize the amount of uncontrolled runoff that could enter drains or surface water.

Local Policies

The *Placer County General Plan* and the *Auburn-Bowman Community Plan* set forth requirements for minimizing flooding and water quality impacts for new development. The policies of these Plans, as applicable to hydrology and water quality, are provided below.

Placer County General Plan Policies

- Policy 4.E.5** The County shall continue to implement and enforce its Grading Ordinance and Flood Damage Prevention Ordinance.
- Policy 4.E.10** The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other Best Management Practices (BMPs).
- Policy 4.E.11** The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume.
- Policy 4.E.13** The County shall require that new development conforms with the applicable programs, policies, recommendations and plans of the Placer County Flood Control and Water Conservation District.
- Policy 6.A.5** The County shall continue to require the use of feasible and practical Best Management Practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.
- Policy 6.A.7** The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

Auburn-Bowman Community Plan Policies

- Improve water quality by eliminating existing water pollution sources and by discouraging activities which include the use of hazardous materials around wetland and water recharge areas.
- Preserve and enhance watersheds, particularly those adjacent to water supply sources. Where urban or suburban development is permitted within such watersheds, require that urban runoff be adequately treated before being released.
- Coordinate with the Placer County Health Department and the Department of Public Works in identifying critical watershed areas and in designating Best Management Practices appropriate to those areas for use by new development projects which are undertaken in those watersheds.
- Establish special procedures (including setbacks, etc.) for land use, building locations, grading operations, and vegetation removal adjacent to all drainage ways, canals, and significant water features.

- Ensure that new development storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's "Stormwater Management Manual" and the County's "Land Development Manual."
- Require new development to detain increases in peak stormwater runoff, or to pay appropriate in-lieu fees for compensating improvements, in all areas recommended for local detention in the "Auburn/Bowman Community Plan Hydrology Study" (Appendix D of the Plan's Background Report).
- The community's canal systems should be protected from excessive contamination resulting from spillage or runoff of impurities originating from land development projects.
- Require that canals be encased whenever they pass through developments with lot sizes of 2.3 acres or less; where subdivision roads are constructed within 100 feet upslope or upstream from canals; and within all commercial, industrial, institutional, and multi-family developments.
- Require that each new development project potentially affecting a canal must provide proper protection to that canal as part of the development review committee (DRC) review of the project. Require that DRC coordinate its requirements with the entity responsible for the canal.
- Assure that new development conforms with the adopted programs, recommendations, and plans of the Placer County Flood Control and Water Conservation District.

Methodology

The Project's potential effects on surface hydrology and water quality were compared to the thresholds in the following subsection to determine whether the Project could create significant environmental impacts. This Draft EIR reviewed previous environmental documents associated with the Project site, particularly the Bohemia Wal-Mart EIR. Also, previous environmental studies and reports conducted on the Project site were reviewed, including a groundwater monitoring report prepared by Bohemia, Inc. in 1992, and a drainage study for a previously proposed apartment project that was prepared by Psomas in 2000. The Background Report for the *Auburn/Bowman Community Plan* provided background information.

Thresholds of Significance

Impacts would be considered significant if the Project:

- Violates any water quality standards or waste discharge requirements or otherwise substantially degrades water quality.
- Substantially depletes groundwater supplies or interferes with groundwater recharge.

- Substantially alters the existing drainage pattern in a manner that would either result in substantial erosion or siltation on- or off-site, or increases the rate or amount of surface runoff, resulting in flooding on- or off-site.
- Creates or contributes runoff that would exceed the capacity of existing or planned stormwater drainage systems.
- Exposes people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

Environmental Impacts and Mitigation Measures

Impact SHWQ-1 Impacts to Water Quality as a Result of Grading, Excavation, and Other Construction Activities

Construction associated with the proposed Project would involve grading of the Project site, excavation, and trenching for utilities. These activities are expected to occur on the entire Project site. As previously discussed in Section 3.5, Geology, Soils and Mineral Resources, construction activities would loosen the soils and increase the amount of soil exposed to erosive forces. Eroded soils can be carried into the canals via surface runoff, degrading water quality. While the canals would be enclosed as a result of the Project, it is not known when the enclosure would take place. Therefore, the canals could remain open during a portion of Project construction. Dust from Project construction could be transported to other nearby locations, where it can enter surface water runoff and the existing drainage system. Sediment could be transported off-site by construction vehicles as they leave the site, trailing mud and/or dust. This could enter the drainage system in the area, eventually adding sediments to local streams. In addition, soil could be contaminated by spills and leaks from heavy equipment and machinery, staging areas, or building sites. These contaminants could be collected by surface runoff and conveyed downstream, which could further degrade water quality. These impacts are considered **potentially significant**.

In accordance with NPDES regulations, the Project would be required to obtain the State General Construction Activity Stormwater Permit, as construction activities associated with the Project would disturb more than one acre of land. As a component of the SWPPP that is required as part of the NPDES permit process, BMPs would be implemented during construction activities to control surface runoff and reduce water quality degradation. The SWPPP would be required to obtain regulatory approval to ensure that BMPs are sufficient to address water quality concerns.

As described above, ground water has been found as close as approximately four feet below ground surface. If dewatering operations are necessary as part of Project construction, the operations must comply with conditions of the RWQCB's general permit for construction dewatering if the water is disposed on the surface or piped to existing channels or streams. Compliance with the State-mandated requirements described in this discussion would ensure that the Project would not substantially degrade water quality or substantially increase sediment loading into nearby waterways.

Mitigation Measures GEO-1a and 1b in Section 3.5, along with mitigation measures in Section 3.2 would reduce some of the impacts associated with Project construction. In addition, the following mitigation measures are required, which are in accordance with the Standard Conditions for development projects as established by the Placer County Engineering and Surveying Department (ESD).

Mitigation Measure SHWQ-1a

Stockpiling and/or vehicle staging areas shall be identified on the Improvement Plans and located as far away as is practical from existing dwellings and protected resources in the area.

Mitigation Measure SHWQ-1b

Drainage facilities, for purposes of collecting runoff on individual lots, shall be designed in accordance with the requirements of the County Storm Water Management Manual that are in effect at the time of submittal, and shall be in compliance with applicable stormwater quality standards, to the satisfaction of the Engineering and Surveying Department (ESD). These facilities shall be constructed with subdivision improvements and easements provided as required by ESD. Maintenance of these facilities shall be provided by the homeowners' association.

Mitigation Measure SHWQ-1c

Water quality treatment facilities (BMPs) shall be designed according to the guidance of the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development / Redevelopment, and for Industrial and Commercial (or other similar source as approved by the Engineering and Surveying Department (ESD)). BMPs shall be designed to mitigate (minimize, infiltrate, filter, or treat) stormwater runoff. Flow or volume based post-construction BMPs shall be designed at a minimum in accordance with the Placer County Guidance Document for Volume and Flow-Based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection. BMPs for the project include, but are not limited to: vegetated swales, vortex separators, and velocity dissipaters. All BMPs shall be maintained as required to ensure effectiveness. Proof of on-going maintenance, such as contractual evidence, shall be provided to ESD upon request.

Mitigation Measure SHWQ-1d

This Project is located within the area covered by Placer County's municipal stormwater quality permit, pursuant to the National Pollutant Discharge Elimination System (NPDES) Phase II program. Project-related stormwater discharges are subject to all applicable requirements of said permit. BMPs shall be designed to mitigate (minimize, infiltrate, filter, or treat) stormwater runoff in accordance with "Attachment 4" of Placer County's NPDES Municipal Stormwater Permit (State Water Resources Control Board NPDES General Permit No. CAS000004).

Implementation of the mitigation measures, along with those in Sections 3.2 (AQ-1) and 3.5 (GEO-1a and GEO-1b), would reduce potential impacts to a level that would be **less than significant**.

Impact SHWQ-2 Increased Stormwater Runoff Volumes

The proposed development includes the installation of impervious surfaces on a site that generally is undeveloped. Impervious surfaces include buildings, streets, driveways, and sidewalks. An increase in impervious surfaces typically leads to an increase in runoff generated on the site, since less precipitation can percolate into the ground than under pre-construction conditions. Without measures to accommodate the additional runoff, this could lead to localized flooding or a significant increase of runoff into receiving streams, which would increase the likelihood of flooding along the streams.

The Project applicant has prepared a *Drainage Study*, **Appendix H** of the Draft EIR that addresses impacts related to the proposed grading and installation of impervious surfaces on the property. As shown in **Figure 3.10-2**, Proposed On-site Drainage Map, drainage improvements include a proposed detention basin on the northwest corner of the site, which has a storage capacity of one acre-foot. The on-site drainage system is divided into three systems designated as A, C, and D. System A is approximately 10 acres in size and is designed to carry an additional bypass flow of 18 cubic feet per second (cfs) from the adjacent property on the east. It has a total 10-year peak flow of approximately 28.4 cfs and a 100-year peak flow of approximately 36.1 cfs. System A flows to the proposed detention basin.

System D is approximately 40 acres in size and is located off-site, adjacent to the Union Pacific Railroad. This existing development has an underground drainage system that flows into a ditch running along the railroad tracks. The 10-year peak flow from this area is 38 cfs. This flow is intended to go through two 18-inch culverts and one 12-inch culvert under the railroad tracks, which is the direction of the natural drainage flow. According to Chart 5 of the Placer County Land Development Manual, these three culverts could carry 17 cfs with no head. Additional flows from System D overflow into the Wise Canal. With the Project, this bypass flow will end at the detention pond which will attenuate flow and eventually discharge into the drainage outfall provided by the proposed Project.

System C, the lower portion of the Project site, will bypass the detention pond and flow directly to the existing 42-inch storm drain crossing S.R. 49. The detention requirement will be using runoff from areas A and D. The peak flow from Area C will pass prior to peak outflow from the detention pond. System C is designed to sufficiently carry its flow as well as the detention basin release flow. Stormwater runoff from this shed will be treated prior to leaving the project site. Systems such as vegetated swales, mechanical filtering systems, and other techniques will be reviewed and approved during the improvement plan process to ensure compliance with water quality requirements.

On-site drainage facilities have been designed to sufficiently carry the drainage of the entire Project site, including a portion of runoff from Canal Street and the existing tributary area, which drains from the developed residential lots adjacent to the northern Project boundary. As shown in Figure 3A of the Drainage Study, a new 36-inch storm drain pipe will convey Project flows to an existing 42-inch storm drain stubbed to the easterly side of S.R. 49. In addition, 15-inch, 18-inch and 24-inch, respectively, storm drains are proposed to convey on-site Project flows (drainage system A) to the detention basin. Project generated flows originating in the lower southwestern portion of the Project site (System C) will bypass the detention pond and flow directly to the existing 42-inch storm drain.



Figure 3.10-2
Proposed On-site Drainage Map

As stated previously in Public Services, Utilities, and Recreation, Section 3.8, Fiddler Green Canal will be enclosed in an underground pipe through the Project site following the street right-of-way or easements. The size of the pipe has been designed based on peak water flow in the Canal. There will be a trash rack at the inlet with an overflow to the detention pond. With these design features and Mitigation Measures PUB-1a and PUB-1b in Section 3.8, no impacts would occur related to Fiddler Green Canal during Project construction or operation. Therefore, this impact would be **less than significant**.

As shown in **Figure 2-1** of **Section 2.0** of the Draft EIR, the proposed Project will entail no construction or earth movement within the jurisdictional areas of Wise Canal during construction or operation of the Project. As such, no adverse impact to Wise Canal would occur.

The *Drainage Study* addresses several potential impacts, such as higher peak flow rates at downstream locations, overloading of actual or design capacity of existing stormwater and flood-carrying facilities, and alteration of 100-year floodplain boundaries.

Given all the above information, it is reasonable to expect that the Project would not significantly affect storm water drainage. However, no specific construction plans have been presented regarding the proposed drainage system. Also, construction activities would have their own impacts on drainage, as previously discussed in Section 3.5. Therefore, impacts on storm water runoff are still considered **potentially significant**.

Mitigation Measures GEO-1a through 1d in Section 3.5 and Mitigation Measures PUB 1a and PUB 1b in Section 3.8 would reduce some of the impacts of the Project on storm water runoff. In addition, the following mitigation measure is required.

Mitigation Measure SHWQ-2

Implement Mitigation Measure GEO-1b.

Compliance with the above mitigation measure, along with implementation of the proposed drainage system consistent with the system evaluated in the *Drainage Study*, and implementation of the SWPPP would ensure that potential storm drainage impacts would be **less than significant**.

Impact SHWQ-3 Ongoing Stormwater Runoff Impacts on Water Quality

In addition to runoff volume, development of the Project has the potential to adversely impact water quality, through introduction of urban pollutants in the runoff. Such pollutants can include oil, grease, fertilizers, household wastes, urban litter, detergents, and other common urban contaminants. These pollutants would be transported into local streams, adversely affecting water quality. This impact is **potentially significant**.

The SWPPP that would be required for the Project would include BMPs that would offset these impacts, including the use of debris racks, filters, and traps for pollutants. Mitigation Measure SHWQ-1b, described above, along with Mitigation Measures GEO-1a and 1b in Section 3.5, would also reduce potential impacts on water quality. In addition, the following mitigation measures are presented.

Mitigation Measure SHWQ-3a

In accordance with the Standard Conditions of ESD, Storm drainage from on-and off-site impervious surfaces (including roads) shall be collected and routed through specially designed water quality treatment facilities (BMPs) for removal of pollutants of concern (i.e. sediment, oil/grease, etc.), as approved by the Engineering and Surveying Department. With the Improvement Plans, the applicant shall verify that proposed BMPs are appropriate to treat the pollutants of concern from this project. The applicant shall provide for the establishment of vegetation, where specified, by means of proper irrigation, for effective performance of BMPs. Maintenance of these facilities shall be provided by the project owners/permittees unless, and until, a County Service Area is created and said facilities are accepted by the County for maintenance. Prior to Improvement Plan or Final Map approval, easements shall be created and offered for dedication to the County for maintenance and access to these facilities in anticipation of possible County maintenance. No water quality facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.

Mitigation Measure SHWQ-3b

Water quality treatment facilities (BMPs) shall be designed according to the guidance of the California Stormwater Quality Association Stormwater Best Management Practice Handbooks for Construction, for New Development / Redevelopment, and for Industrial and Commercial (or other similar source as approved by the Engineering and Surveying Department (ESD)). BMPs shall be designed to mitigate (minimize, infiltrate, filter, or treat) stormwater runoff. Flow or volume based post-construction BMPs shall be designed at a minimum in accordance with the Placer County Guidance Document for Volume and Flow-Based Sizing of Permanent Post-Construction Best Management Practices for Stormwater Quality Protection. BMPs for the project include, but are not limited to: vegetated swales, vortex separators, and velocity dissipaters. All BMPs shall be maintained as required to insure effectiveness. Proof of on-going maintenance, such as contractual evidence, shall be provided to ESD upon request.

Implementation of the above mitigation measures, along with implementation of the mitigation measures previously mentioned and the incorporation of aforementioned BMPs, would reduce impacts to a level that is **less than significant**.

Impact SHWQ-4 Exposure of Persons to Flood Hazards

The Project site is not located within a recognized 100-year floodplain, according to the Federal Emergency Management Agency (FEMA). Grading plans for the Project show that the site would be graded so that runoff drains into ditches on the northern and western boundaries of the Project site, as well as into an on-site detention basin. Since there are no natural streams that traverse the Project site, the Project would have no impact on the current or course of direction of any streams. However, the Project could have an impact on the volume of water carried by streams that eventually receive runoff collected by the ditches along the site boundaries.

According to the *Drainage Study*, the detention basin will be constructed to have a storage capacity of one acre-foot. The Project will contribute a 10-year flow of 18.2 cfs of which 12.6 cfs is a set discharge from the basin. The 100-year storm contributes 46.2 cfs of which 23.4 cfs is a set

discharge for the detention basin. Therefore, there would be more than adequate capacity in the detention basin to accommodate excess runoff, and flooding is anticipated to be unlikely. However, as previously discussed under Impact SHWQ-2, no specific construction plans for the drainage system have yet been presented. Therefore, impacts are considered **potentially significant**.

Mitigation Measure SHWQ-2, described above, along with Mitigation Measure GEO-1b in Section 3.5, would reduce potential impacts. With the site located outside the floodplain, potential hazards resulting from flooding are minimal, and implementation of the mitigation measures would reduce potential impacts to a level that would be **less than significant**.

Notes and References

- ¹ Letter from William H. Crooks, Executive Officer, California Regional Water Quality Control Board, Central Valley Region, to Corey Unfried, Manager, Environmental Affairs, Bohemia, Inc., dated October 29, 1992.